

The opinion in support of the decision being entered today
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LUBERT STRYER and SERGEY ZOZULYA

Appeal 2007-1819¹
Application 09/886,055
Technology Center 1600

Decided: August 27, 2007

Before DONALD E. ADAMS, LORA M. GREEN, and NANCY J. LINCK,
Administrative Patent Judges.

Opinion by ADAMS, *Administrative Patent Judge*. Dissenting Opinion by
Linck, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims 23-33. While
Appellants' Brief identifies claim 24 as withdrawn from consideration

¹ Appellants' representative failed to appear for the scheduled June 5, 2007 hearing. Accordingly, we treat Appellants' failure to appear as a waiver of their request for oral hearing (MPEP § 1209). Accordingly, we considered this appeal on Brief.

(Br.² 2), the Examiner explains that “[c]laim 24 was examined with respect to the originally elected SEQ ID NOs 55 and 56” (Answer 3). The only remaining claims, claims 34-36, were withdrawn from consideration as drawn to a non-elected invention. We have jurisdiction under 35 U.S.C. § 6(b).

INTRODUCTION

The claims are directed to a method for representing sensory perception of one or more odorants. Claim 23 is illustrative:

23. A method for representing sensory perception of one or more odorants comprising:

(a) providing a representative class of n olfactory receptors or ligand-binding domains thereof;

(b) measuring X_1 to X_n representative of at least one activity of the one or more odorants selected from the group consisting of binding of the one or more odorants to the ligand-binding domain of at least one of the n olfactory receptors, activating at least one of the n olfactory receptors with the one or more odorants, and blocking at least one of the n olfactory receptors with the one or more odorants; and

(c) generating a representation of sensory perception from the values X_1 to X_n

wherein at least one of the n olfactory receptors has the amino acid sequence contained in SEQ ID NO: 55.

² “Br.” refers to Appellants’ Substitute Appeal Brief Under § 41.37(c) (filed October 27, 2006).

The Examiner relies on the following prior art references to show unpatentability:

Burford US 2004/0224314 A1 Nov. 11, 2004
Krautwurst et al. "Identification of Ligands for Olfactory Receptors by Functional Expression of a Receptor Library" *Cell*, Vol. 95 (December 23, 1998), pp. 917-926.

The rejection as presented by the Examiner is as follows:

Claims 23-33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Krautwurst and Burford.³

We reverse.

DISCUSSION

As Appellants explain, "the complexities of sensory perception of chemical sensants^[4] prevent easy translation of the olfaction . . . system[] to a machine sensor" (Specification 2). Therefore, Appellants' "invention provides methods for representing the sensory perception of one or more chemicals (*e.g.*, a primary sensant or mixture thereof) and/or for predicting the sensory perception of one or more chemicals in a mammal (*e.g.*, human) using . . ." olfactory receptors (Specification 4).

³ We recognize Appellants' arguments with regard to claims 34-36 (Br. 10). However, as the Examiner explains, claims 34-36 were "withdrawn from consideration as not directed to the elected invention" (Answer 3).

Accordingly, this is a petitionable matter not properly before us on appeal.

⁴ Olfactory receptors recognize odorants referred to as sensants or sensory receptor ligands (Specification 1). "A 'primary' sensant is an odorant . . . ligand that substantially binds to sensory receptors with a ligand-binding site of a single amino acid sequence" (*id.*).

Olfactory “receptors belong to the superfamily of seven-transmembrane guanyl nucleotide-binding proteins . . .” (Specification 1). “The human genome contains thousands of genes that encode a diverse repertoire of olfactory receptors,” which are “expressed in subsets of cells distributed in distinct zones of the olfactory epithelium” and “are active primarily in olfactory neurons” (Specification 6). “These receptors control diverse physiological functions such as mediating signaling from an external chemical stimulus across the membrane containing the receptor into a cell, endocrine function, exocrine function, heart rate, lipolysis, and carbohydrate metabolism” (Specification 2). More specifically, olfactory “receptors bind odorants and initiate the transduction of chemical stimuli into electrical signals. An activated or inhibited G-protein will in turn alter the properties of target enzymes, channels, and other effector proteins” (Specification 39-40). As Appellants explain,

[a]n understanding of an animal’s ability to detect and discriminate among the thousands of distinct odorants . . . and more particularly to distinguish, for example beneficial . . . odorants from toxic . . . odorants, is complicated by the fact that sensory receptors belong to a multigene family with over a thousand members, and the odorant receptors number at least 500 to 1,000.

(Specification 6). “[E]ach sensory receptor neuron may express only one or a few of these receptors” (*id.*). Further, “any given olfactory neuron can respond to a small set of odorant ligands . . . [and] odorant discrimination for a given neuron may depend on the ligand specificity of the one or few receptors it expresses” (*id.*). As Appellants explain, “[d]issecting the function of sensory receptors . . . will separate the diverse physiological

functions associated with sensory perception at the level of ligand-receptor binding” (Specification 2-3).

Claim 23 is drawn to a method for representing sensory perception of one or more odorants. Claims 24-33 depend from claim 23.

Appellants’ claimed method comprises three steps:

- (a) providing a representative class of n olfactory receptors or ligand-binding domains thereof;
- (b) measuring X_1 to X_n representative of at least one activity of one or more odorants; and
- (c) generating a representation of sensory perception from the values X_1 to X_n .

According to claim 23, the representation of at least one activity of an odorant is determined by the odorant’s ability to

- (1) bind to the ligand-binding domain of at least one of the n olfactory receptors,
- (2) activate at least one of the n olfactory receptors, or
- (3) block at least one of the n olfactory receptors.

In addition, claim 23 requires that at least one of the n *olfactory receptors has the amino acid sequence contained in SEQ ID NO: 55*.

Claims 24-33 depend from claim 23.

Claims 23-33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Krautwurst and Burford. The Examiner finds that “Krautwurst teaches the method steps of claim 23” (Answer 4). The Examiner recognizes, however, that Krautwurst does not teach, *inter alia*, an olfactory receptor having the sequence set forth in SEQ ID NO. 55 (Answer

6). The Examiner relies on Burford to teach a protein having SEQ ID NO. 55 (*id.*). Based on this evidence, the Examiner concludes that

[i]t would have been *prima facie* obvious to utilize the method as taught by Krautwurst et al. with the sequences as taught by Burford et al. since Burford et al. note “The largest subfamily of GPCRs, the olfactory receptors, are also members of the rhodopsin-like GPCR family. These receptors function by transducing odorant signals. Numerous distinct olfactory receptors are required to distinguish different odors. Each olfactory sensory neuron expresses only one type of olfactory receptor, and distinct spatial zones of neurons expressing distinct receptors are found in nasal passages. However, the expression of olfactory-like receptors is not confined to olfactory tissues (see p. 2 paragraph 0008).”

(Answer 6.) According to the Examiner, “[a]n ordinary practitioner would have been motivated to use the method as taught by Krautwurst et al. with the sequences as taught by Burford et al. in order to assess the physiological functions of these receptors in the presence of a variety of odorants”

(Answer 6-7).

Appellants do not dispute that Krautwurst discloses a method having all the steps set forth in claim 23 (Br. 7). Appellants also do not dispute that Burford teaches a protein having SEQ ID NO:55 (*id.*). However, Appellants assert that neither Krautwurst nor Burford teach that a protein having SEQ ID NO: 55 is an *olfactory receptor* (Br. 6)⁵. Accordingly, Appellants assert that it is improper for the Examiner to simply conclude, without an

⁵ See also Br. 7 (Burford “fail to teach or identify SEQ ID NO-55 as encoding a human olfactory receptor”). Therefore, the dissent’s assertion that “Appellants do not dispute the Examiner’s finding that ‘Burford discloses SEQ ID NO:27 (Appellants’ SEQ ID NO:55 . . .) is an olfactory receptor’ (Answer 7-8 (citing Burford 42 (Table 3)). (See Br. *passim.*)” (infra 13: ¶10) is factually incorrect.

underlying factual basis, that Burford's protein having SEQ ID NO: 55 *is* an olfactory receptor and maintain a rejection of the claimed method based on this unsupported conclusion (*id.*). According to Appellants,

while the Examiner is correct in her assertion that olfactory receptors constitute a large subfamily of GPCRs, this does not mean that it is reasonable to assume based on this fact that a GPCR of uncharacterized function will encode an olfactory receptor. Nor is it reasonable to conclude that it would be obvious to utilize such a sequence in an olfactory assay as claimed herein.

(Br. 8) We agree⁶ and find the issue before this panel to be two-fold: (1) does Burford teach or reasonably suggest an *olfactory receptor* protein having SEQ ID NO: 55; and (2) if so, would it have been *prima facie* obvious to a person of ordinary skill in the art at the time of Appellants' claimed invention to modify the method of Krautwurst to include this protein.

According to the Examiner, Burford teaches that SEQ ID NO: 27, which corresponds to Appellants SEQ ID NO: 55, *is an olfactory receptor*

⁶ Therefore, we disagree with the dissent's factually unsupported conjecture that olfactory receptors are the largest subfamily of G protein coupled receptors (GPCRs) and therefore a protein that shares some degree of homology with an olfactory receptor would be expected to be an olfactory receptor (*infra* 15). As Appellants explain, those of ordinary skill in this art would recognize that "GPCRs constitute a huge group which includes thousands of different genes which are involved in a myriad of different cellular functions and signaling events with only one of these functions being olfaction" (Br. 8). *See* Burford for a listing of the various cellular functions and signaling events in which GPCRs are involved (Burford 1: ¶ 0004). *See also* Burford's disclosure that the largest subfamily of GPCRs is the rhodopsin-like subfamily "which transmit diverse extracellular signals including hormones, neurotransmitters, and light" (Burford 1: ¶ 0006). Included in this "subfamily" are the olfactory receptors (Burford 2: ¶ 0008).

(Answer 7-8). In support of this assertion, the Examiner directs attention to Table 3 at page 42 of Burford (*id.*). According to Burford, “Table 3 shows structural features of each polypeptide sequence, including predicted motifs and domains, along with the methods, algorithms, and searchable databases used for analysis of each polypeptide” (Burford 5:¶ 0044).

While, Table 3 discloses that Burford’s SEQ ID NO: 27 has some regions, and motifs, that share some degree of homology with an olfactory receptor, it also teaches that SEQ ID NO: 27 shares some degree of homology with, *inter alia*, the melanocortin receptor family and orphan receptors (Burford 42).⁷ In this regard, we note that, as Burford explains, receptors, “which act as receptors for stimuli that have yet to be identified” (Burford 1: ¶ 0004) are known as orphan receptors.

Apparently recognizing that Burford does not teach or reasonably suggest that SEQ ID NO: 27 *is* an olfactory receptor, the Examiner asserts that Appellants’ SEQ ID NO: 55 represents a structural homolog of, and is derived from, a sequence suggested by the prior art to be an olfactory receptor (Answer 9). In all, the Examiner appears to be uninterested in the fact that Burford also teaches that SEQ ID NO: 27 also shares homology with other proteins. Unlike the dissent, we will not take the Examiner’s bait.

The issue is whether the art teaches or reasonably suggests that Appellants’ SEQ ID NO: 27 is an olfactory receptor. The Examiner has not

⁷ In addition, we recognize that Burford’s Table 2 discloses that the “nearest GenBank homolog” (Burford 5: ¶ 0043) for SEQ ID NO: 27 is an olfactory receptor from *Rattus norvegicus* (Burford 38: Table 2-continued). However, the Examiner makes no attempt to demonstrate that the degree of similarity between SEQ ID NO: 27 and *Rattus norvegicus* is sufficient to allow one of ordinary skill in the art to reasonably expect that SEQ ID NO: 27 *is* an olfactory receptor.

avored this record with any fact-based reasoned analysis as to why any particular GPCR subfamily to which SEQ ID NO: 27 shares homology should be favored over another. The Examiner has also not favored this record with a fact-based reasoned analysis as to why a person of ordinary skill in this art would reasonably find that the degree of homology shared with SEQ ID NO: 27 and an olfactory receptor would have led a person of ordinary skill in the art to conclude that it is an olfactory receptor.

Notwithstanding the Examiner's conjecture as to whether Appellants have derived a protein with this sequence from prior art homologues, or in an attempt to obtain alternate compounds with improved properties (Answer 9), the issue before this panel is whether the prior art recognized that a protein having the sequence of SEQ ID NO: 55 would have been expected to be an olfactory receptor. For the reasons discussed above, neither Krautwurst nor Burford provide this teaching.

Obviousness requires a teaching that all elements of the claimed invention are found in the prior art and "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does" *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007). There is no doubt that the Examiner found each of Appellants' claimed elements in the prior art. What is missing, however, is a factual basis to support a finding that a person of ordinary skill in the art would have reasonably expected that Appellants' SEQ ID NO: 55 is an olfactory receptor that could have been used in the method taught by Krautwurst with a reasonable expectation of success in representing sensory perception as is required by Appellants' claimed invention.

There is no doubt that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1739, 82 USPQ2d 1385, 1395 (2007). However, the problem with the Examiner’s rationale is that there is no fact-based reasoned analysis of the evidence on this record that would lead a person of ordinary skill in this art to conclude that a protein that shares some degree of homology with an olfactory receptor, as well as other proteins, would be expected to be an olfactory receptor.

Without some suggestion in the art that would have led a person of ordinary skill in the art to conclude that SEQ ID NO: 55 is an olfactory receptor; it cannot be said that the use of SEQ ID NO: 55 in Krautwurst’s method would yield a predictable result. Instead, without the knowledge that SEQ ID NO: 55 is an olfactory receptor, one would not be able to draw any conclusion from its inclusion in Krautwurst’s method.

The same is true if one would argue that it would have been “obvious to try” using Burford’s protein having SEQ ID NO: 27 in Krautwurst’s method. Absent knowledge in the art that would have led a person of ordinary skill in the art to reasonably conclude that SEQ ID NO: 27 is an olfactory receptor, one would not be able to draw any conclusion from its inclusion in Krautwurst’s method. Stated differently, one would not have been able to predict whether SEQ ID NO: 27 would provide any informative result in Krautwurst’s method or that it would be capable of representing sensory perception as is required by Appellants’ claimed invention. As set forth in *KSR*, 127 S. Ct. at 1742, 82 USPQ2d at 1397, emphasis added,

[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, *predictable* solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. *In that instance* the fact that a combination was obvious to try might show that it was obvious under § 103.

While the evidence relied upon may lead one to do further research to determine whether SEQ ID NO: 27 is, in fact, an olfactory receptor – the evidence of record does not provide for the predictable practice of Appellants' claimed invention using SEQ ID NO: 27. As set forth in *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988), citations omitted:

[t]he admonition that “obvious to try” is not the standard under § 103 has been directed mainly at two kinds of error. In some cases, what would have been “obvious to try” would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. . . . In others, what was “obvious to try” was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it.

On this record, the evidence provides general guidance that would lead, at best, to a promising field of experimentation.

On reflection, we find that there is insufficient evidence on this record to support a conclusion that Burford teaches or reasonably suggest that Buoford's protein having SEQ ID NO: 27 is an *olfactory receptor* protein.

Accordingly, we find that the evidence of record fails to suggest that a person of ordinary skill in the art at the time the invention was made would have been able to predictably combine Burford and Krautwurst to obtain a method for representing sensory perception of one or more odorants as set forth in Appellants' claims.

Therefore, we reverse the rejection of claims 23-33 under 35 U.S.C. § 103(a) as unpatentable over the combination of Krautwurst and Burford.

CONCLUSION

In summary, we reverse the rejection of claims 23-33 under 35 U.S.C. § 103(a) as unpatentable over the combination of Krautwurst and Burford.

REVERSED

lbg

LINCK, *Administrative Patent Judge, dissenting.*

I would affirm the Examiner and, thus, respectfully dissent from the majority's reversal.

Appellants admit "Krautwurst discloses a method having all the steps as set forth in claims 23-26 with the exception of failing to teach or suggest any sensory assay that uses . . . an olfactory receptor as set forth in SEQ ID NO:55." (Br. 7.⁸) According to Appellants, Burford does not cure this deficiency. While Burford "teaches a number of different G protein coupled receptor sequences including a sequence that appears to correspond to SEQ ID NO:55 . . . the teachings of Burford . . . fail to teach or identify SEQ ID NO:55 as encoding a human olfactory receptor." (*Id.*)

The Examiner responds:

"Burford discloses SEQ ID NO:27 (Appellants' SEQ ID NO:55 . . .) is an olfactory receptor at page 42 Table 3" (Answer 7-8) or at least one of a limited number of "structural homologs, which are derived from . . . sequences suggested by the prior art as olfactory receptors" (*id.* at 9). Thus, according to the Examiner one of skill in the art would be motivated to combine the method of functional analysis, as taught by Krautwurst with the specific olfactory receptor sequences disclosed by Burford . . . because Krautwurst discloses the expectation that his method of analysis will be used to study olfactory receptors elucidated in other laboratories. (*Id.* at 8.) Further, according to the Examiner, "the skilled artisan practicing the method of Krautwurst and looking for olfactory proteins with which to practice, would review Burford and only be selecting from 24 olfactory

⁸ "Br." refers to Appellants' Substitute Appeal Brief Under § 41.37(c) (filed October 27, 2006.)

receptors,” a very limited genus. (*Id.* at 9.) Thus, the “skilled artisan would attempt to obtain alternate compounds with improved properties” by using Burford’s disclosed 24 polypeptides suggested to be olfactory receptors. (*Id.*)

Based on these conflicting positions, the single issue before us with respect to claim 23 is, would it have been obvious to one of ordinary skill in the art to use Burford’s SEQ ID NO: 27 (Appellants’ SEQ ID NO:55) in the assay method taught by Krautwurst, as required by claim 23?

The following findings of fact are supported by the record and by the scope and content of the prior art and level of skill in the art:⁹

1. Krautwurst’s teachings “provide[s] a model system for the study of ligand specificity and structure-function relationships for olfactory receptors.” (Krautwurst 918 (col. 1).)

2. As admitted by Appellants, Krautwurst discloses all the limitations of claim 23 except the use of “an olfactory receptor as set forth in SEQ ID NO:55.” (Br. 7. *See also* Answer 4-5 (citing Krautwurst 918-20 & Table 3).)

3. Thus, the single difference between Krautwurst’s assay method and that of Appellants is Appellants’ use of SEQ ID NO:55. (FF 2.)

4. Burford expressly discloses a limited number polypeptides having olfactory receptor signatures and homology to known olfactory receptors, including SEQ ID NO:55 (identified by Burford as SEQ ID NO:27). (*See, e.g.*, Burford 38-42 (Table 3); Answer 7-9 (quoted in part above).)

5. Burford’s SEQ ID NO:27 is from “ORGANISM: Homo sapiens” (Burford 76 (Table 7)), and the nucleic acid encoding it (SEQ ID NO:66)

⁹ Findings of Fact are abbreviated “FF.”

has substantially the same sequence as Appellants' SEQ ID NO:56, the nucleic acid sequence encoding SEQ ID NO:55 (*Compare* Burford 106 with Spec. 75).

6. Burford also discloses: "The largest subfamily of GPCRs . . . are the olfactory receptors" (Burford, col. 2, ll. 1-3.)

7. A skilled artisan would have known or at least reasonably expected Burford's SEQ ID NO:27 to be an olfactory receptor based on the level of skill in the art and Burford's teachings. (Answer 7-8; FFs 4-6.)

8. A skilled artisan would have been motivated to try to utilize Burford's polypeptides having olfactory receptor sequences in the assay method of Krautwurst, based on the level of skill in the art and on the teachings of Burford and Krautwurst. (*See* FFs 1-7; Krautwurst 918, col. 1 ("Our approach provides a model system for the study of ligand specificity and structure-function relationships for olfactory receptors."); *see also* Answer 8.)

9. A skilled artisan would have had a reasonable expectation of success applying Krautwurst's assay method to Burford's polypeptides having homology to known olfactory receptors, based on Krautwurst's teachings, which are representative of the level of skill in the art at the time the invention was made. (*See* FFs 1-8.)

10. Appellants do not dispute the Examiner's finding that "Burford discloses SEQ ID NO:27 (Appellants' SEQ ID NO:55 . . .) is an olfactory receptor" (Answer 7-8 (citing Burford 42 (Table 3))). (*See Br. passim.*)

DISCUSSION

Appellants do not dispute that Krautwurst discloses every limitation of claim 23, except the clause “wherein at least one of the n olfactory receptors has the amino acid sequence contained in SEQ ID NO: 55.” (FF 2.) Further, contrary to the majority’s finding, Appellants do not dispute the Examiner’s finding that “Burford discloses SEQ ID NO:27 (Appellants’ SEQ ID NO :55 . . .) *is* an olfactory receptor” (Answer 7-8 (citing page 42 Table 3) (emphasis added)). (FF 10.)

The record does not support the majority’s finding that “Appellants assert that neither Krautwurst nor Burford teach[es] that a protein having SEQ ID NO:55 is an *olfactory receptor* (Br. 6).” (*Supra* p. 6 (emphasis majority’s).) Rather Appellants merely argue “the rejection is improper since it relies upon the identification of SEQ ID NO:55 as encoding a *human* olfactory receptor” (Br. 6). This argument does not refer to Burford’s teachings *at all* but rather to Appellants’ owning teachings.

Tellingly, Appellants are totally silent as to the data in Burford’s Table 3 and the Examiner’s reliance on that data. In Table 3, Burford expressly identifies SEQ ID NO:27 (admitted to be the same as Appellants’ SEQ ID NO:55) as a polypeptide with homology to a known olfactory receptor and teaches it has olfactory receptor signature sequences. (See FFs 4-5.)

In addition, Appellants do not acknowledge Burford’s disclosure of a limited number of other such polypeptides suggested to be olfactory receptors. (FF 4; *see Br. passim.*)

Given the above, it is difficult to understand how the majority finds there is no “factual basis to support a finding that a person of ordinary skill

in the art would have reasonably expected that Appellants' SEQ ID NO: 55 is an olfactory receptor that could have been used in the method taught by Krautwurst with a reasonable expectation of success in representing sensory perception" (*supra* p. 9). On the contrary, given the evidence of record, it is at least more likely than not SEQ ID NO:27 is an olfactory receptor. (FFs 4-6.) Certainly, the record as a whole would have suggested that it is. This is particularly true in that SEQ ID NO:27 is undeniably a GPCR receptor and therefore more likely than not an olfactory receptor, as the "largest subfamily of GPCRs . . . are the olfactory receptors". (Burford, col. 2, ll. 1-3.)

Arguments not made are waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) ("Any arguments or authorities not included in the brief or a reply brief ... will be refused consideration by the Board, unless good cause is shown."). Thus, to the extent Appellants had an argument or evidence with which they could have rebutted the Examiner's *prima facie* case of obviousness and did not do so, the Board should not attempt to fill that void with its own reasoning on Appellants' behalf.

Based on the Examiner's undisputed findings and those above, I conclude it would have been obvious to try using each of the 24 polypeptides Burford suggests are olfactory receptor sequences in Krautwurst's assay with a reasonable expectation of success. (FFs 8-9.) "Obvious to try" can be an appropriate test in certain situations. When there is motivation "to solve a problem," such as the "identification, on a large scale, of cognate receptor-odorant interactions" (Krautwurst 917, col. 1), and "there are a finite number of identified, predictable solutions," such as the limited number of potential olfactory receptor sequences disclosed in

Burford's Table 3, "a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007).

The Supreme Court's reasoning in *KSR* is applicable here. Utilizing Burford's disclosed potential olfactory receptor sequences in Krautwurst's assay would have been "the product not of innovation but of ordinary skill and common sense" and should not be patented. Thus, based on the Examiner's reasoning and our findings above, I conclude the invention of claim 23 would have been obvious to one of ordinary skill in the art at the time the invention was made.

In reversing the Examiner's rejections, the majority states: "Obviousness requires a *teaching* that *all elements* of a claimed invention are found in the prior art" (*supra* p. 9 (emphasis added)). There is no support offered for this proposition. As the Federal Circuit has made clear "obviousness does not require the prior art to reach expressly each limitation exactly. Rather, obviousness may render a claimed invention invalid where the record contains a suggestion or motivation to modify the prior art teaching to obtain the claimed invention." *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 727, 63 USPQ2d 1031, 1037 (Fed. Cir. 2002). This error is repeated elsewhere (*see, e.g., supra* p. 9 ("without the knowledge that SEQ ID NO: 55 *is* an olfactory receptor, one would not be able to draw any conclusion from its inclusion in Krautwurst's method")) (emphasis added)).

The law does not require knowledge SEQ ID NO:55 *is* an olfactory receptor but only that it is more likely than not to be one. Such knowledge

would have lead to a reasonable expectation of success in this case. *See, e.g., In re O'Farrell*, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) ("Obviousness does not require absolute predictability of success. . . . For obviousness under § 103, all that is required is a reasonable expectation of success."). (*See also* FF 9.)

As previously stated, appropriately framed, the issue is, would it have been *obvious* to one of ordinary skill in the art to use Burford's SEQ ID NO: 27 (Appellants' SEQ ID NO:55) in the assay method taught by Krautwurst, as required by claim 23? Based on the record before us, I conclude the Examiner has made a *prima facie* case that it would have been obvious to the skilled artisan—a case that Appellants have not rebutted.

Likewise, since Appellants did not separately argue the patentability of claims 25-33, I would also affirm their rejection pursuant to 37 C.F.R. § 41.37(c)(1)(vii) (2006).

lbj

HUNTON & WILLIAMS LLP
INTELLECTUAL PROPERTY DEPARTMENT
1900 K STREET, N.W.
SUITE 1200
WASHINGTON DC 20006-1107